Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
PTC-220, LLC, Request for Waiver to Facilitate Deployment of Positive Train Control Systems	)	WT Docket No. 13-59
	)	
	)	File Nos. 0005631265, 0005631266, 0005631269, 0005631270, 0005631271, 0005631272, 0005631282, 0005631284, 0005631286, 0005631289, and 0006225216
	)	

To: Chief, Mobility Division, Wireless Telecommunications Bureau

OPPOSITION TO PETITION FOR RECONSIDERATION

PTC-220, LLC ("PTC-220")[1] respectfully submits this opposition to the Petition for Reconsideration submitted on behalf of Cornerstone, SMR, Inc. and Comtran Associates, Inc. (collectively, the "Petitioners").[2] The Petitioners have requested that the Wireless Telecommunications Bureau (the "Bureau") reconsider the Memorandum Opinion and Order[3] granting PTC-220's Request for Waiver of Sections 90.729(b) and 90.723(f) of the Commission's rules to facilitate the deployment of positive train control ("PTC") systems in the

[1] PTC-220 is a joint venture among the seven Class I freight railroads in the United States formed to oversee the development and deployment of interoperable positive train control communications systems. PTC-220 members include BNSF Railway, Canadian National Railway, Canadian Pacific Railway, CSX Transportation, Kansas City Southern Railway, Norfolk Southern Railway, and Union Pacific Railroad.

[2] Petition for Reconsideration of Cornerstone, SMR, Inc. and Comtran Associates, Inc., WT Docket No. 13-59, (Apr. 13, 2015) (the "*Petition*").

[3] *PTC-220, LLC, Request for Waiver to Facilitate Deployment of Positive Train Control Systems*, Memorandum Opinion and Order, WT Docket No. 13-59, DA 15-332 (WTB, Mar. 13, 2015) ("*Waiver Order*").

upper one megahertz segment of the 220 MHz Band.[4] As explained more fully below, dismissal of the *Petition* will promote railway safety and facilitate compliance with the Congressional mandate to implement PTC systems across the country's railroads.

INTRODUCTION AND SUMMARY

In the Rail Safety Improvement Act of 2008, Congress mandated that an interoperable PTC network be put in place by December 31, 2015.[5] In its *Waiver Request*, PTC-220 requested waiver of Sections 90.729(b) and 90.723(f) of the Commission's rules to facilitate the development and timely deployment of such a PTC network through more efficient use of the spectrum. PTC-220 noted that the risk of interference to other licensees within the 220 MHz band was low, but that in any event, it would immediately address any interference to incumbents that resulted from its operations under grant of the waiver.[6]

In granting PTC-220's *Waiver Request*, the Bureau noted that waiver of the technical restrictions on antenna height and power limits would "serve the public interest of all Americans in rail safety, including the safety of life and property by facilitating PTC deployments."[7] However, the Bureau noted that while it was granting the requested relief, it was also implementing safeguards to protect other licensees, such as a 38 dBμ field strength limit along license borders and bright-line geographic and frequency separation requirements. The Bureau conditioned its waiver of the rules on continued non-interference as well as notification

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[4] PTC-220 Request for Waiver, WT Docket No. 13-59 (Feb. 1, 2013) ("*Waiver Request*").

[5] Rail Safety Improvement Act of 2008, Pub. L. No. 110-432, § 104, 122 Stat. 4848, 4857 (2008) ("Rail Safety Improvement Act" or "RSIA").

[6] *Waiver Request* at 17 (PTC-220 promised that it would be "willing and able to take measures necessary to prevent or correct such interference to co-channel and adjacent channel receivers operating between 221-222 MHz caused by PTC operations following the waiver").

[7] *Waiver Order* ¶ 15.

requirements, and explicitly stated that if "interference to other licensees' operations occur despite these safeguards, PTC-220 will be required to promptly remedy such interference at its own expense."[8]

Given the relatively small likelihood of interference, PTC-220's obligation to protect other licensees, the safeguards put in place by the Bureau, and the conditional nature of the *Waiver Grant*, the Petitioners' purported concerns regarding interference have already been addressed over the course of this two-year proceeding, with additional mitigation concessions and requirements imposed on PTC-220's member railroads. The argument that mobile PTC operations on locomotives present increased interference mitigation problems is particularly misplaced, because the *Waiver Order* applies only to base station operations.[9] Furthermore, co-channel interference between PTC-220's licenses and those of the Petitioners is extremely unlikely given the geographic location of the respective license markets. Therefore, the Bureau should deny the *Petition* and reaffirm the *Waiver Order*.

DISCUSSION

A. Petitioners Failed to Satisfy the Procedural Rules for the Filing of a Petition for Reconsideration

As an initial matter, Petitioners are barred from challenging the *Waiver Order* because they have not, until now, participated in this proceeding or offered any justification for that failure. Section 1.106(b)(1) of the Commission's rules explains that anyone may submit a petition for reconsideration in a non-rulemaking proceeding, but if that person is not a party to the proceeding, he must "show good reason why it was not possible for him to participate in the

[8] *Id.* ¶ 9.

[9] *See* Section B, *infra*.

earlier stages of the proceeding."[10] Petitioners had ample opportunity to participate in this proceeding before adoption of the *Waiver Order*, and their failure to do so precludes them from now challenging the Bureau's decision.[11]

PTC-220 submitted its *Waiver Request* on February 1, 2013, and the Commission sought comment on the *Waiver Request* on March 8, 2013.[12] Not including PTC-220, seven parties submitted a total of nine filings in the above-referenced docket, and the Bureau has found that these submissions generally supported the *Waiver Request*.[13] The docket remained open to public comment for two years before the Bureau adopted the *Waiver Order*, with multiple parties submitting *ex parte* filings after the formal comment and reply comment deadlines had passed.[14] Having had two full years to express any concerns but failing to do so, and having likewise failed to demonstrate good reason for non-participation, the *Petition* should be dismissed as inconsistent with Section 1.106(b)(1).[15]

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[10] 47 C.F.R. § 1.106.

[11] *See, e.g.*, *Request of Fleet Call, Inc.*, Memorandum Opinion and Order, 6 FCC Rcd 6989 (1991) (dismissing NARUC's petition for reconsideration of a waiver grant under Section 1.106(b)(1), and noting that small staffs or personnel changes were not "good reason" for failure to participate in a proceeding's earlier stages); *Comm. for Cmty. Access v. F.C.C.*, 737 F.2d 74, 84 (D.C. Cir. 1984) (surprise at a Commission decision is not good cause for failure to participate during earlier stages of a proceeding); *Heritage Cablevision Associates of Dallas, L.P., & Texas Cable TV Ass'n, Inc. Complainants*, Memorandum Opinion & Order, 7 FCC Rcd 4192 (1992) (being unaware of a proceeding does not excuse the failure to participate).

[12] *Wireless Telecommunications Bureau Seeks Comment on Request for Waiver to Facilitate Deployment of Positive Train Control Systems*, Public Notice, 28 FCC Rcd 2243 (WTB 2013).

[13] *Waiver Order* ¶ 5 ("There is broad support for the Waiver Request.").

[14] *See, e.g.*, Ex Parte Letter of Russell Ehrlich, Manager, Communications & Network Systems Engineering, Pepco Holdings, Inc. to Marlene Dortch, Secretary, Federal Communications Commission, WT Docket No. 13-59 (June 6, 2013); Ex Parte Comments of Dixie Electric Membership Corporation, Inc. and Berkeley Electric Cooperative, Inc., WT Docket No. 13-59 (May 14, 2013).

[15] *See Channel 23 Ltd. P'ship*, Memorandum Opinion and Order, 29 FCC Rcd 15073 ¶ 5 (2014) (explaining that good cause for non-participation exists when a pending application is resolved very quickly (*i.e.* four or five days), but that petitions should generally be dismissed "when the grant occurred more than 30 days after the filing of the application, [because] the petitioner had ample time to prepare and file an objection").

B. Petitioners' Concerns Regarding Mobile Operations Are Unfounded

The Petitioners express considerable concern that the *Waiver Order* will result in interference to their operations from mobile radios installed on locomotives.[16] This concern is unfounded because the *Waiver Order* does not apply to mobile units operating on PTC-220 spectrum.[17] While Section 90.729(b) contains power limits for mobile units as well as for fixed and base stations operating in the 221-222 MHz band, PTC-220's *Waiver Request* only sought relief from the rules with regard to PTC base station radios.[18] The *Waiver Order* also clearly explains that the requested relief involves base stations, without making any mention of mobile units.[19] Petitioners are therefore mistaken in their supposition that the *Waiver Order* will create additional interference from mobile units.[20] PTC radios installed on locomotives will continue to operate pursuant to the 50 watt ERP limit contained in Section 90.729(b).

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[16] *See Petition* at 2-3.

[17] This was already communicated to Cornerstone in a letter transmitted via e-mail to Cornerstone on April 11, 2015, prior to the April 13, 2015 filing date of the Petition. *See* letter from James Reimer, Association of American Railroads Frequency Coordination Office, to Marcus Duff, President, Cornerstone SMR, Inc. (April 11, 2015) (attached to this Opposition as Exhibit A) (the "AAR Response Letter") ("PTC mobiles will be operated within the mobile power limits in 90.729(b) . . . . the mobiles will not be 'high-powered' radios as suggested in your letter.").

[18] *See, e.g.*, *Waiver Request* at 9 ("PTC-220 requests the ability to deploy and operate PTC base radios in the 221-222 MHz band at power levels consistent with the ERP and antenna height limits in Section 90.729(a) governing the 220-221 MHz band ….").

[19] *See, e.g.*, *Waiver Order* ¶ 11 ("Although the *PTC-220 2009 Waiver Order* permits PTC-220 to operate <u>base stations</u> in the 221-222 MHz band segment, the segment's more restrictive power and antenna height rules limit its utility for <u>base stations</u> operations.") (emphasis added).

[20] Petitioners are also mistaken in asserting that the Congressional PTC mandated has been extended. *See Petition* at n.2. While legislation (S.650) has been introduced in the Senate that would provide for PTC deployment extensions, it has not become law. Thus, Petitioners' suggestion that there is no urgency to PTC-220's requested waiver relief is unfounded.

C. Co-Channel Interference Is Unlikely, Especially to Petitioners

The Petitioners also express concern that they will receive co-channel interference as a result of the *Waiver Order*.[21] This is extremely unlikely. As the *Waiver Order* explains, the only potential co-channel interference that could occur would relate to PTC-220's six Economic Area E block licenses.[22] A review of Petitioners' spectrum holdings in ULS reveals that all of their licenses operating within the E Block are located at great distances from PTC-220's E Block licenses.[23] Indeed, the nearest license appears to be more than *150 miles* from a PTC-220 license area.[24] The Petitioners have not explained how they could have a credible fear of co-channel interference given these distances, or how they have standing to challenge the *Waiver Order* on co-channel interference grounds.

Nevertheless, even if Petitioners had standing to challenge this issue, Petitioners are wrong in suggesting that nearby co-channel licensees must bear the cost of conducting RF engineering and propagation analysis to determine whether they will suffer interference from a waiver-enabled PTC-220 base station. The *Waiver Order* does not require such action, nor would rational licensees have a legitimate reason to undertake such efforts, given that the *Waiver Order* requires PTC-220 to comply with the 38 dBμ field strength limit at the borders of its six

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[21] *See Petition* at 4-5.

[22] *See Waiver Order* ¶¶ 18-20, and n. 45 (listing PTC-220's six E Block call signs).

[23] ULS research revealed only seven Cornerstone licenses, and no Comtran licenses, operating on E Block frequencies. The Cornerstone licenses are WPOJ313, WPOJ318, WPOJ322, WPOJ324, WQQE961, WPCK232, and WPCY276. The Petitioners wrongly imply that the PTC-220 notification letter they attach as "Exhibit A" is a letter sent to Cornerstone as a co-channel licensee. If fact, the letter was sent, as required by the *Waiver Order*, to all adjacent channel licenses *within 200 kHz* and 20 km of a planned PTC-220 site.

[24] Cornerstone's WPCK232 call sign is located in Peotone, IL, more than 150 miles from PTC-220's WPOI800 (St. Louis, MO-IL) license area.

E Block licenses, which provides protection to co-channel licensees.[25] The 38 dBμ contour protection criteria is widely used by frequency coordinators in the band, and the field strength limit has been firmly ensconced in the FCC's 220 MHz rules for almost two decades,[26] having withstood a petition for reconsideration.[27]

The 38 dBμ field strength limit reduces the likelihood of interference and the need for co-channel licensees to conduct their own interference analysis. However, should licensees notice interference after initiation of a waiver-enabled base station, the prior notice they will have already received will make it easy to determine whether the source of the interference is, in fact, PTC-220's operations. If PTC-220 is the source, the other licensee will know whom to contact to have the interference addressed promptly.

The Petitioners nevertheless request that more technical information be provided in the notices.[28] In particular, Petitioners request to know what emission designators will be used.[29] PTC-220 does not object to providing this information: the base stations will use 8K90DXW when operating in 16 kb/s mode, and 17K8DXW when operating in 32 kb/s mode. However, Petitioners also request to know the "anticipated mobile loading."[30] As explained in Section B

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[25] *Waiver Order* ¶ 20.

[26] *Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services*, Third Report and Order, 12 FCC Rcd 10943, 11030-31 ¶ 182 (1997).

[27] *Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services*, Memorandum Opinion and Order on Reconsideration, 13 FCC Rcd 14569 (1998).

[28] Petitioners incorrectly state that "Cornerstone has requested additional technical information from AAR but no reply has been forthcoming." *Petition* at 5. In fact, AAR did respond to Cornerstone via e-mail within four days of receiving their information request. *See AAR Response Letter*, *supra* note 17.

[29] *Petition* at 5.

[30] *See id*.

above, the *Waiver Order* does not apply to mobile units, so information regarding mobile use is not relevant to an analysis of PTC-220's waiver-enabled operations.

Finally, Petitioners also question how AAR (PTC-220's frequency coordinator) conducts its research used to conclude that existing stations will not be affected by a planned PTC-220 waiver-enabled base station.[31] AAR begins by querying the FCC's Universal Licensing System ("ULS") database to obtain the call signs, locations, frequencies and EIRPs for incumbents in the 217-223 MHz range. Using the contact information available in ULS, AAR contacts those incumbents (such as geographic area licensees) whose location, frequency and/or power information is not fully available through ULS, to request the necessary information. During the base station planning and frequency selection phases, AAR conducts an analysis to determine whether any of PTC-220's fixed sites could possibly cause radio desensitization issues on incumbents' fixed radio locations or *vice-versa*. This analysis is completed using calculations involving predicted received signal strength of the PTC-220 site at the incumbent location, with a conservative assumption used for the radio desensitization threshold.

D. The Waiver of Section 90.723(f) Was Justified

The Petitioners complain that the conditional waiver of the coordination requirement contained in Section 90.723(f) increases the threat of interference to commercial licensees.[32] Like the issue of co-channel interference discussed above, the waiver of Section 90.723(f) is only relevant to PTC-220's six E Block licenses. Section 90.723(f) applies to "Phase II licensees with base or fixed stations transmitting on 220-221 MHz frequencies assigned from Sub-band B and Phase II licensees with base or fixed stations receiving on Sub-band A 221-222 MHz

[31] *See id.*

[32] *See id.*

frequencies."[33] Only PTC-220's six E Block licenses contain base-transmit frequencies assigned from Sub-band B.[34] Thus, the geographic areas at issue are relatively small.

Petitioners are mistaken in asserting the *Waiver Order* did not provide a basis for the waiver "that resonates under Section 1.925."[35] The Bureau explicitly concluded that:

> [W]e find that the purpose of Section 90.723(f)—to ensure appropriate geographic spacing of certain Phase II facilities to mitigate the potential for interference—will not be served by its strict application to the instant case. We further find that a grant of the requested waiver will serve the public interest in the timely deployment of PTC rail safety systems.[36]

Thus, the Bureau determined that the request satisfied Section 1.925(b)(3)(i) of the FCC's waiver rule.[37] Under that rule, a waiver may be granted if the request satisfies either Section 1.925(b)(3)(*i*) <u>or</u> Section 1.925(b)(3)(*ii*); it is not necessary to satisfy both. Nevertheless, PTC-220's *Waiver Request* clearly set forth the unique circumstances it faces – thus addressing subsection (ii) of the waiver rule – that would make compliance with Section 90.723(f) inequitable, unduly burdensome or contrary to the public interest.[38]

Moreover, it is by no means unprecedented, as Petitioners suggest, for the FCC to grant waivers in order to facilitate and expedite the deployment of public safety-related technologies, particularly where, as here, there is little legitimate risk of interference to other licensees. To

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[33] 47 C.F.R. § 90.723(f).

[34] PTC-220's J Block licenses are also assigned from Sub-band B, but were removed from the original *Waiver Request. See Waiver Order* ¶ 4.

[35] *See Petition* at 6.

[36] *Waiver Order* ¶ 39.

[37] 47 C.F.R. § 1.925(b)(3) ("The Commission may grant a request for waiver if it is shown that: (i) The underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or (ii) In view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.").

[38] *See Waiver Request* at 21-22.

facilitate deployment of services in the 700 MHz public safety broadband spectrum, the Commission granted numerous waivers to public safety entities seeking to deploy broadband networks.[39] Similarly, the Commission granted a waiver request seeking to use Industrial/Business frequencies for public safety communications upon a finding that the grant would be in the public interest and that there was little risk of interference.[40] In the context of railroad communications, the Commission granted a waiver of the two watt power limit in the 450-470 MHz Band to facilitate the deployment of "end-of-train" devices used to transmit information relating to train safety systems.[41] The Commission again premised its actions on findings that the public interest would be served by granting the waiver and that the risk of interference to other licensees was small.[42] Thus, there is precedent to support the grant of waivers for the purpose of promoting the deployment of public safety-related systems.

Finally, the need for limited relief from the coordination requirement is nowhere better illustrated than in PTC-220's prior communication with Cornerstone. On three occasions last year – August 25, September 9, and November 13 – AAR wrote to Cornerstone via e-mail to request information about Cornerstone's operations so that PTC-220 could plan the location of

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[39] *In the Matter of Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Pub. Safety Wireless Broadband Networks*, Order, 25 FCC Rcd 5145 (2010). The Commission found that "the public interest is served by allowing jurisdictions to begin deployment and speed services to the public safety community." *Id.* ¶14. *See also In the Matter of State of New Jersey, Office of Info. Tech.*, Order, 28 FCC Rcd 1358 (2013) (granting waiver of certain Part 90 rules to facilitate the use of deployable trunked systems by first responders).

[40] *In the Matter of City of Los Angeles*, 23 FCC Rcd 8720 ¶¶ 6-7 (2008) (finding that the proposed system would serve the public interest by facilitating "routine and emergency operations for the protection of life and property").

[41] *Requests for Waiver for End-of-Train Devices to Exceed Power Limit for Telemetry Operations in the 450-470 MHz Band*, Order, 25 FCC Red 16986, 16988 ¶¶ 1-2 (2010).

[42] *Id*. ¶¶ 7-8 (finding that "[o]peration of higher-power EOTs will increase the safety of life and property for railroads and their employees, and for people in communities through which trains travel," and that "there is little risk of interference due to the requested increase in power").

its sites in the Chicago and Dallas/Fort Worth metropolitan areas.[43] AAR received no response to these messages. If PTC-220 were required to await a response from every licensee contacted before proceeding, nationwide PTC implementation would suffer crippling delays as a result of what Petitioners suggest are normal "administrative challenges."[44]

E. Petitioners' Flexibility in Siting Future Operations Will Not Impacted

The Petitioners complain that their "flexibility of construction and deployment … has been severely reduced" by the *Waiver Order*, requiring them to "cooperate, self-coordinate, notify and await action by PTC-220."[45] The Petitioners greatly exaggerate these alleged burdens.

All 220 MHz licensees have both a practical need (as a matter of good RF management practices) and a legal obligation to coordinate with other licensees when planning to construct a new station.[46] This is not unique to PTC-220's waiver-enabled operations. Moreover, while the Petitioners' coordination efforts may be slightly *different* when there are waiver-enabled operations nearby, they are not necessarily *greater* than they otherwise would be. Without the waiver, more individual railroad sites would be required to cover the same geography. Thus, there could well be instances where PTC-220 would have sites that, while lower in power, might be geographically closer to Petitioners' planned sites and thus would still require coordination efforts.

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[43] These messages explained that "As a part of the design process, we would like to avoid potential interference issues between PTC-220 LLC radios and your existing radios in the band. As a result, it would be mutually beneficial to know your radio locations (coordinates) and technical parameters (including Tx/Rx frequency, antenna height, and EIRP), so that we can avoid potential interference issues.").

[44] *See Petition* at 6 ("That PTC-220 would have some administrative challenges in meeting the Section 90.723(f) obligations is neither regrettable nor a basis for waiver.").

[45] *See Petition* at 7.

[46] *See* 47 C.F.R. § 90.173(b).

Indeed, there are some advantages to coordinating with PTC-220 waiver-enabled stations – namely, Petitioners will already know the location and technical parameters of the PTC-220 sites well in advance based on the *Waiver Order*'s notification requirements.[47] Thus, as soon as Petitioners determine where they would like to place a new site, they can immediately begin the coordination process with PTC-220 simply by providing PTC-220 with the coordinates and technical parameters (including transmitter and receiver frequency, transmitter antenna height, and transmitter EIRP) of their planned site.[48] By contrast, with regard to other licensees' fixed transmitters (operating without a waiver), Petitioners will first need to research the location and other technical data pertinent to these sites, which will often involve contacting the licensee to request this information.

In short, the *Waiver Order* already ensures that Petitioners will be able to site future stations at the locations of their choice.[49] PTC-220 understands that it must work expeditiously on coordinations, including making adjustments, if necessary, to the operating parameters of PTC base stations to accommodate Petitioners' new site locations.[50] If the parties disagree about the required adjustments, they may seek FCC involvement in setting these parameters.[51] Thus, because the relief sought by the *Petition* on this issue is already provided in the *Waiver Order*, no reconsideration of the Bureau's decision is needed.

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[47] *See Waiver Order* ¶ 29.

[48] This is the information "an EA licensee would need to provide AAR or PTC-220 to cause either to take action in accommodating future build-outs …." *See Petition* at 7.

[49] *See Waiver Order* ¶ 41.

[50] *See id.*

[51] *See id.* (citing 47 C.F.R. § 90.173(b)).

CONCLUSION

PTC-220 recognizes that the issues raised by its proposal in the *Waiver Request* are complex and required accommodations to address concerns raised by other 220 MHz licensees. That is why, in large part, the proceeding remained pending for more than two years, providing time for the Bureau, 220 MHz licensees and other interested parties to fully vet these issues. PTC-220 made several revisions and concessions to its original proposal as a result of these deliberations. The further background and explanation provided in this Opposition will assist Petitioners in better understanding the limitations on PTC-220's waiver grant. In light of its previous consideration of the issues raised by Petitioners and the responses provided in this Opposition, the Bureau should deny the Petition for Reconsideration.

Respectfully submitted,

/s/ *Michele C. Farquhar*
Michele C. Farquhar
David L. Martin
Hogan Lovells US LLP
555 Thirteenth Street, NW
Washington, DC 20004
Phone: (202) 637-5663
Facsimile: (202) 637-5910
michele.farquhar@hoganlovells.com

Counsel to PTC-220, LLC

April 23, 2015

CERTIFICATE OF SERVICE

I, David Crawford, certify that on this 23rd day of April, 2015, I have caused a true and correct copy of the foregoing Opposition to Petition for Reconsideration to be served via first-class and electronic mail upon:

Robert H. Schwaninger
Schwaninger Law P.C.
6715 Little River Turnpike, Suite 204
Annandale, VA 22003
rschwaninger@sa-lawyers.net
Counsel for Petitioners

By: /s/ *David Crawford*
David Crawford

EXHIBIT A

ASSOCIATION OF AMERICAN RAILROADS

James Reimer
Frequency Coordination Office
Transportation Technology Center, Inc.
PO Box 11130 • Pueblo, Colorado 81001
Ph. 719-584-0578
Email: james_reimer@aar.com

April 11, 2015

Marcus Duff
President
Cornerstone SMR, Inc.
1001 West Cypress Creek Road, Suite 410
Fort Lauderdale, FL 33309-1951

RE: Response to letter dated April 7, 2015

Dear Mr. Duff:

Thank you for your letter dated April 7th. On behalf of PTC 220 LLC, we are providing the information you requested below.

As you may be aware from reading the FCC's waiver grant (DA 15-332), PTC-220 has licensed spectrum under FRN 0017368184, holding nationwide call signs along with additional call signs in specific markets, all between 220 and 222 MHz. In the larger urban areas, most if not all of the channels identified in the FRN will be used.

The Rail Safety Improvement Act of 2008 (RSIA'08) requires that Positive Train Control (PTC) be deployed along class 1 railroads as well as intercity passenger and commuter rail lines throughout the nation. Therefore, you can expect to see significant deployments everywhere that these types of railroads operate. This includes all major urban areas and along rail lines that interconnect them.

PTC is a communications-based train control system designed to meet the requirements of 49CFR236.1005(a). The specific channels addressed under waiver DA 15-332 fall between 221 and 222 MHz and will be used for PTC base stations.

We share your interest in avoiding interference and have used your site information from the ULS to plan our RF designs with your sites under consideration. Since your ULS address information was outdated, we would like for you to review your ULS site locations and let us know as soon as possible if there are any additional corrections of which we should be aware.

In regard to mobile operations, PTC mobiles will be operated within the mobile power limits in 90.729(b) and PTC220 does not intend to seek waivers for increasing the ERP limits from mobile units at this time. Simply stated, the mobiles will not be "high-powered" radios as suggested in your letter.

In 2009, the FCC granted a waiver to 90.715(a)'s base/mobile transmit and receive limitations to enable radio deployment using time division duplex (TDD) technology. Due to the power and height restriction for base stations, this had effectively left the 221-222 MHz range of PTC220's licenses unused without the waiver to 90.729(b). The waivered operations will allow PTC bases to send/receive using TDD technology utilizing the 221 MHz side of the band as well.

Below, you will find the information requested concerning the specifications of the radios used in fixed bases by PTC-220 LLC.

- RF Power Output: 75W PEP. Adjustable from 10W PEP to 75W PEP
- Modulation: π/4DQPSK (linear)
- Channel Bandwidth: 25 kHz
- Emission Mask: meets 47 CFR 90.210(f), five aggregated channels
- Filters: No external filtering of which we are aware.

As explained in our earlier letters, in Los Angeles we do not believe you have any existing stations that would be affected by PTC-220's stations; i.e., your stations are well beyond 20 km and 200 kHz of the PTC-220's waiver-authorized stations.

Please feel free to write to me with any further questions regarding this matter.

Sincerely,

James Reimer
AAR Frequency Coordination Office
Phone: 719-584-0578
Email: james_reimer@aar.com